REMARKS

Claims 21 and 33 have been amended and claims 1-15 and 21-38 are pending in the present application. The amendments do not narrow the claims, evidence no surrender of subject matter, and are made merely to further the prosecution of this application. Accordingly, favorable reconsideration of the pending claims is respectfully requested.

1. Election

As requested by the Examiner, Applicants hereby affirm the election to prosecute the Group 1 claims 1-15 and 21-38.

2. Rejections Under 35 U.S.C. § 112

Claims 15 and 21-38 have been rejected under 35 U.S.C. §112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. In particular, the Examiner has indicated that: (1) claim 15 is indefinite because it is unclear what the metes and bounds are of the patent protection intended by the phrase "substantially free of wheat protein, barley protein, oat protein, and rye protein;" (2) claim 21 is unclear as to whether the "bioactive substance" in component (c) is an additional substance to the bioactive substance recited in line 2 of claim 21; and (3) claim 33 is unclear as to whether the "glucosamine-based substance" recited in component (c) is an additional substance to the glucosamine-based substance recited in line 2. Applicants respectfully traverse.

Addressing these rejections in order, regarding the rejection of claim 15, Applicants direct the Examiner to recent guidance given by Federal Circuit regarding the term "substantially":

> Expressions such as "substantially" are used in patent documents when warranted by the nature of the invention, in order to accommodate the minor variations that may be appropriate to secure the invention. Such usage may well satisfy the charge to "particularly point out and distinctly claim" the invention, 35 U.S.C. §112, and

> indeed may be necessary in order to provide the inventor with the benefit of his invention.
>
> * * *
>
> It is well established that when the term "substantially" serves reasonably to describe the subject matter so that its scope would be understood by persons in the field of the invention, and to distinguish the claimed subject matter from the prior art, it is not indefinite.

Verve LLC v. Crane Cams Inc., No. 01-1417, (Fed. Cir. 2002) (decided Nov. 14, 2002) (emphasis added). Thus, the Federal Circuit recognizes that the term "substantially" is warranted in order to accommodate minor variations in claim scope.

Additionally, the specification explains what is intended by the added limitations recited in claim 15: "[a]lthough other types of maltodextrin could be used in alternate embodiments of this invention, MALTRIN® maltodextrins are preferred because they reportedly contain no proteins from wheat, barley, oats or rye, and thus are reported safe for individuals with celiac disease." Specification, para. 21. Hence, the term "substantially free" in claim 15 ensures that the claimed maltodextrin avoids any amount of the recited proteins that would be harmful to persons with celiac disease.

Regarding claims 21 and 33, the Applicants disagree that claims 21 and 33 are indefinite. Nevertheless, in order to further the prosecution of this case, claims 21 and 33 have been amended in a non-narrowing way, in each case replacing the term "a" with the term "the." These amendments do not evidence any surrender of subject matter, either through the doctrine of equivalents or otherwise.

Accordingly, Applicants respectfully request that the rejections of claims 15 and 21-38 under 35 U.S.C. §112 be withdrawn.

3. **Rejections Under 35 U.S.C. §§ 102 & 103**

a. Claims 1 and 7-11

Claims 1 and 7-11 have been rejected under 35 U.S.C. §§ 102(b) and 103 as being unpatentable over United States Patent No. 5,470,581 issued to Grillo et al. ("*Grillo*") for the reasons set forth on pages 3-4 of the Office Action.

Claim 1 recites, *inter alia*, "wherein the cellulose and the maltodextrin are distributed throughout the orally administered specimen." One purpose and advantage of distributing the cellulose and the maltodextrin throughout the specimen, and not merely as a coating, is clearly stated in paragraph 10 of the application as filed:

> The cellulose [in] combination with maltodextrin provides gelling effects and . . . *slows the disintegration of the tablet*, thus contributing to the *sustained release of the medicine or supplement in the tablet*. In addition, the gelling effects prevent the direct contact with the stomach wall of a substantial amount of the possibly irritant medicine or supplement. (emphasis added)

In contrast, *Grillo* discloses a method of *coating* pharmaceutical tablets and the like. *See, e.g.*, Abstract of *Grillo* ("A method of coating substrates."); col. 1, ll. 10-12 ("This invention is in the field of aqueous film coating . . . and is specifically concerned with providing coatings."); col. 3, l. 43 ("[A] number of HPMC coating films were made."). The advantages cited by Grillo include: "a stronger coating" and "excellent adhesive qualities, enhanced gloss characteristics and reduced incidence of cloudiness." Col. 5, ll. 10-14, and 36-38. These advantages are largely irrelevant to the present invention's sustained release tableting compositions. Further, *Grillo* requires the use of a plasticizer, such as polyethylene glycol (*see* col. 2, ll. 6-8), and water, components necessary to form a coating suspension but not required for use with sustained release tablets.

Additionally, despite *Grillo's* teaching of a coating that includes, *inter alia*, maltodextrin and cellulose polymers, such compositions as taught by *Grillo* do not provide for sustained release and

would not protect a stomach wall from direct contact with a medicine or supplement. Hence, *Grillo* is clearly directed to teaching a "coating" or "coating film" as opposed to a sustained release compound that is "distributed throughout the orally administered specimen" as recited in claim 1.

Accordingly, Applicants respectfully submit that claim 1 and any claim depending directly or indirectly therefrom, is neither disclosed nor anticipated by *Grillo*. Claims 7-11 depend from claim 1, and therefore, include the limitations therein. As a result, Applicants believe that claims 7-11 are patentable over *Grillo* for at least the reasons presented with respect to claim 1. It is respectfully submitted that the rejections of claims 1 and 7-11 based on U.S.C. § 102 have been overcome and should now be withdrawn.

In the Office Action, claims 1 and 7-11 were also rejected under 35 U.S.C. § 103 as being unpatentable based on obviousness to one of ordinary skill in the art to modify *Grillo's* composition with expectation of at least similar result.

1. Obviousness Rejections in General

Applicants respectfully submit that a *prima facie* case of obviousness has not been established. Under M.P.E.P. § 2143, a *prima facie* case of obviousness requires establishing three (3) elements:

(1) some suggestion or motivation in the cited reference to modify the reference;

(2) a reasonable expectation of success; and

(3) an explicit teaching in the combination or at least a suggestion, of all the claim limitations at issue.

The fact that the reference can be modified is not sufficient to establish obviousness, unless the prior art in addition suggests the desirability of the modification. M.P.E.P. § 2143.01. The teaching or suggestion to make the modification must be found in the prior art, and not based on

applicants disclosure. M.P.E.P. § 2143. According to M.P.E.P. § 2142, it is impermissible to use hindsight to find the motivation to make the modification. Instead, the reference must "expressly or impliedly suggest the claimed invention." In other words, there must exist some teaching, suggestion or motivation to do so in, either the reference, or in knowledge generally available to one of ordinary skill in the art. M.P.E.P. § 2143.01.

Grillo is entirely focused on coatings and their respective properties. There is no suggestion or motivation anywhere in *Grillo* to move from making "coatings" and optimizing the properties of the "coating films" to making a sustained release compound that is "distributed throughout the orally administered specimen." Further, the proposed modification would make *Grillo* unsatisfactory for its intended purpose of applying "coatings." As a result, Applicants respectfully submit that hindsight is impermissibly being used in making the obviousness rejection of claims 1 and 7-11 based on *Grillo*.

Accordingly, Applicant respectfully submits that independent claim 1, as amended and presented herein, and any claims depending directly or indirectly therefrom, is neither disclosed nor obvious variations of the structure in *Grillo*. Because claims 7-11 depend, directly or indirectly, from claim 1, as amended and presented herein, for the reasons stated above relative to claim 1, it is respectfully submitted that claims 7-11 are neither disclosed nor obvious variations of the structures disclosed or suggested in *Grillo*. Applicants, therefore, respectfully request that the rejections of claims 1 and 7-11 under 35 U.S.C. §§ 102 and 103 be withdrawn.

b. Claims 21-23 and 29-32

Claims 21-23 and 29-32 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Grillo* and United States Patent No. 5,128,143 issued to Baichwal et al. ("*Baichwal*") for the

reasons set forth on pages 4-5 of the Office Action. The Office Action notes that "Grillo does not teach the sustained release time period," and then goes on to explain how *Baichwal* overcomes this deficit. See Office Action, p. 5.

As with claim 1, claim 21 recites, *inter alia*, "wherein the cellulose and the maltodextrin are distributed throughout the orally administered specimen." As previously discussed, G*rillo* is entirely focused on coatings and optimizing the properties of the "coating film," including tensile strength, modulus of elasticity, clarity, and tensile strength. *Grillo*, col. 5, ll. 15-28. To that end, *Grillo* requires the use of both a plasticizer and water, components unnecessary and incompatible for use in a powdered tablet. Accordingly, Applicants respectfully submit that claim 21 is also neither anticipated nor obvious over *Grillo* for the reasons presented above with respect to claim 1.

In contrast, *Baichwal* teaches "a slow release pharmaceutical excipient comprising from about 20 to about 70 percent or more by weight of a hydrophilic material comprising a heteropolysaccharides (*e.g.* xanthan gum) and a polysaccharide material capable of cross-linking the heteropolysaccharides (*e.g.* a galactomannan) in the presence of aqueous solutions, and from about 30 to about 80 percent by weight of an inert pharmaceutical filler (*e.g.* the monosaccharide dextrose)." *Baichwal*, col. 4, ll. 15-23 (parentheticals added). *Baichwal* also teaches a slow release pharmaceutical excipient comprising "(I) a hydrophillic material comprising (a) a heteropolysaccharide; or (b) a heteropolysaccharide and a cross-linking agent capable of cross-liking said heteropolysaccharide; or (c) a mixture of (a), (b) and a polyscaccharide gum; and (II) an inert pharmaceutical filler comprising up to about 80 percent by weight of the tablet; and (III) an effective amount of therapeutically active ingredient." *Baichwal*, col. 4, ll. 52-60.

A *prima facie* case of obviousness based on the combination of *Grillo* and *Baichwal* has not been established. As previously noted, under M.P.E.P. § 2143, a *prima facie* case of obviousness

requires establishing that there be some suggestion or motivation in the cited references to combine the reference teachings, that there be a reasonable expectation of success, and that the combined references teach or suggest all the claim limitations. For the following reasons, Applicants respectfully submit that none of these criteria are met by the cited references.

First, Applicants respectfully submit that there is no suggestion or motivation anywhere in *Grillo* or *Baichwal* to combine the references. For example, there is clearly no provided reason that one designing a strong coating composition, with excellent adhesive qualities, enhanced gloss characteristics and reduced incidence of cloudiness, such as *Grillo's* composition, would look to a sustained release tablet (*Baichwal*) to change the coating into a tablet excipient. *See, e.g., Grillo,* col. 5, ll. 10-14 and 36-38. Similarly, there is no provided reason that one designing a powdered tablet that gels upon contact with water (*Baichwal*) would look to a coating suspension (*Grillo*) to incorporate in the tablet features of the coating suspension that are disclosed as adding only strength, excellent adhesive qualities, enhanced gloss characteristics and reduced incidence of cloudiness. *See, e.g., Grillo,* col. 5, ll. 10-14, and 36-38; *Baichwal*, col. 7, ll. 44-47. While an impermissible hindsight view based upon Applicant's disclosure may provide a suggestion that various teachings in either *Grillo* or *Baichwal* may have applicability to the other, using an Applicant's disclosure as a roadmap is not a permissible tool for reading the references. *See* M.P.E.P. § 2142-43. In fact, *Baichwal* actually teaches away from a combination with other references, such as *Grillo*, in that it expressly teaches that designing a tablet composition is extremely difficult and not just any combination will work, even if it has a cellulose polymer. *Baichwal*, col. 3, lines 36-49.

Next, there is no suggestion in either reference that the proposed modification, taken from *Baichwal*, would make *Grillo* satisfactory for its intended purpose of applying "coatings" or of achieving coatings or coating films that have the desired properties taught in *Grillo.* In fact, it is

clear that *Grillo's* coating suspension and *Baichwal's* powdered tablet are completely incompatible in that *Grillo* requires hydrating the coating before applying the suspension to a tablet while *Baichwal* requires there be no hydration until the tablet is administered to a patient so that it does not gel prematurely. *See, e.g., Grillo,* col. 1, ll. 60-64; *Baichwal*, col. 7, ll. 44-47.

As a result, Applicants respectfully submit that *Grillo* and *Baichwal* are being combined based on the impermissible use of hindsight to make the obviousness rejection of claims 21-23 and 29-32 based on *Grillo* and *Baichwal.*

Finally, even if *Grillo* and *Baichwal* are combined, to which Applicants object, Applicants respectfully submit that the proposed combination does not teach all the recited limitations in independent claim 21. More specifically, the cited references do not teach or suggest a sustained release composition comprising cellulose, maltodextrin, and a bioactive substance "such that the maltodextrin and the cellulose provide in an aqueous medium the sustained release of the bioactive substance for a time period" as recited in claim 21. As previously noted, *Grillo* requires the use of a plasticizer and water to create a coating suspension and nowhere teaches any methods or compositions that would enable cellulose and maltodextrin to function as a sustained release excipient. *Baichwal* is similarly deficient in that it teaches only the use of a heteropolysaccharide (xanthan gum), a polysaccharide capable of cross-linking the heteropolysaccharides (galactomannan) and optional inert filler (a monosaccharide such as dextrose). Hence, neither reference teaches or suggests that the combination of cellulose and maltodextrin would function as a sustained release excipient.

In the present application, Applicants are not merely claiming the use of cellulose and maltodextrin in any form in orally administered compositions. Rather, it is by distributing cellulose and maltodextrin throughout orally administered specimens that the hereinabove noted advantages of

sustained release compositions that gel upon ingestion and thereby prevent direct contact between a substantial amount of the administered medicament are obtained.

Accordingly, Applicants respectfully submit that independent claim 21, as amended and presented herein, and any claims depending directly or indirectly therefrom, is neither disclosed nor obvious variations of the structure in *Grillo* and *Baichwal* alone or in combination. Because claims 22-23 and 29-32 depend, directly or indirectly, from claim 21, as amended and presented herein, for the reasons stated above relative to claim 21, it is respectfully submitted that claims 22-23 and 29-32 are neither disclosed nor obvious variations of the structures disclosed or suggested in *Grillo* and *Baichwal*, alone or in combination. It is respectfully submitted that the rejection of claims 21-23 and 29-32 based on 35 U.S.C. § 103 has been overcome and should be reconsidered and withdrawn.

c. Claims 2-6, 33, and 35-38

Claims 2-6, 33, and 35-38 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Grillo* and United States Patent No. 6,417,227 issued to Lord et al. ("*Lord*") for the reasons set forth on pages 5-6 of the Office Action.

Lord discloses a method of delivery of cetyl myristoleate. More specifically, *Lord* teaches an "oral medicament comprising cetyl myristoleate and an enteric coating. The enteric coating is resistant to dissolution in the stomach but predisposed to dissolution in the intestine so as to prevent release of the cetyl myristoleate until the medicament is in the intestine." *Lord*, col. 2, ll. 44-48. *Lord* identifies a number of materials which can be used to form the enteric coating, but also states that "[t]he choice of enteric-coating materials is not of significance as long as release is delayed until the formulation reaches the small intestine." *Lord*, col. 8, ll. 8-19.

Consequently, while both *Grillo* and *Lord* involve "coatings," the two references are focusing on totally different aspects of coatings. *Grillo* is entirely focused on coatings and

optimizing the properties of the "coating film." *Grillo*, col. 5, ll. 15-28. *Lord* on the other hand is concerned with methods of delivery of cetyl myristoleate, and in one application teaches an oral medicament comprising cetyl myristoleate and an enteric coating. The purpose of the enteric coating in *Lord* is to prevent the cetyl myristoleate from being released in the stomach. *See Lord*, col. 2, 44-48. As a result, the proposed combination would destroy the intended purpose of *Lord* and is not permissible.

Further, even if the references are combined, while both *Grillo* and *Lord* involve coatings, neither of the references teaches or suggests a sustained release composition "wherein the cellulose and the maltodextrin are distributed throughout the orally administered specimen" as recited in para. (b) of independent claims 1 and 33. As previously stated, one purpose and advantage of distributing the cellulose and the maltodextrin *throughout* the specimen, and not merely as a coating, is clearly stated in paragraph 10 of the application as:

> The cellulose [in] combination with maltodextrin provides gelling effects and . . . *slows the disintegration of the tablet*, thus contributing to the *sustained release of the medicine or supplement in the tablet*. In addition, the gelling effects prevent the direct contact with the stomach wall of a substantial amount of the possibly irritant medicine or supplement. (emphasis added).

In fact, the oral admistration method identified in *Lord* is specifically utilizes a particular coating to prevent and delay *any* release until the dosage reaches the small intestine.

Accordingly, Applicants respectfully submit that independent claims 1 and 33, as amended and presented herein, and any claims depending directly or indirectly therefrom, are neither disclosed nor obvious variations of the structure in *Grillo* and *Lord* alone or in combination. Because claims 2-6, and 35-38, depend, directly or indirectly, from claims 1 and 33, as amended and presented herein, for the reasons stated above relative to claims 1 and 33, it is respectfully submitted that claims 2-6, and 35-38 are neither disclosed nor obvious variations of the structures disclosed or

suggested in *Grillo* and *Lord*, alone or in combination. It is respectfully submitted that the rejection of claims 2-6, 33 and 35-38 based on 35 U.S.C. § 103 has been overcome and should be reconsidered and withdrawn.

CONCLUSION

In view of the foregoing, Applicants respectfully request favorable reconsideration and allowance of the present claims. In the event the Examiner finds any remaining impediment to the prompt allowance of this application that could be clarified by a telephone interview, the Examiner is respectfully requested to contact the undersigned attorney.

Dated this 24th day of February, 2003.

Respectfully submitted,

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VERSION WITH MARKINGS SHOWING THE CHANGES MADE

In the claims:

Please replace claims 21 and 33 with the following rewritten claims:

21. (Once Amended) A sustained release composition for use as an excipient of an orally administered specimen containing a bioactive substance, comprising:

(a) cellulose in an amount by weight in the orally administered specimen in the range from about 4% to about 14%;

(b) maltodextrin in an amount such that the ratio by weight of the amount of cellulose to the amount of maltodextrin in the orally administered specimen is at least about 1:9, and wherein the cellulose and the maltodextrin are distributed throughout the orally administered specimen; and

(c) **the** [a] bioactive substance, such that the maltodextrin and the cellulose provide in an aqueous medium the sustained release of the bioactive substance for a time period, and this time period is at least one hour.

33. (Once Amended) A sustained release composition for use as an excipient of an orally administered specimen containing a glucosamine-based substance, comprising:

(a) cellulose in an amount by weight in the orally administered specimen in the range from about 4% to about 14%;

(b) maltodextrin in an amount such that the ratio by weight of the amount of cellulose to the amount of maltodextrin in the orally administered specimen is at least about 1:9 and the amount of maltodextrin exceeds the amount of cellulose, such that the cellulose and maltodextrin composition acts as a stomach guard with respect to the glucosamine-based substance, and wherein the cellulose and the maltodextrin are distributed throughout the orally administered specimen; and

(c) **the** **[a]** glucosamine-based substance, such that the maltodextrin and the cellulose provide in an aqueous medium the sustained release of the glucosamine-based substance for a time interval such that the released glucosamine-based substance does not significantly irritate the recipient's stomach lining.